FIG. 1

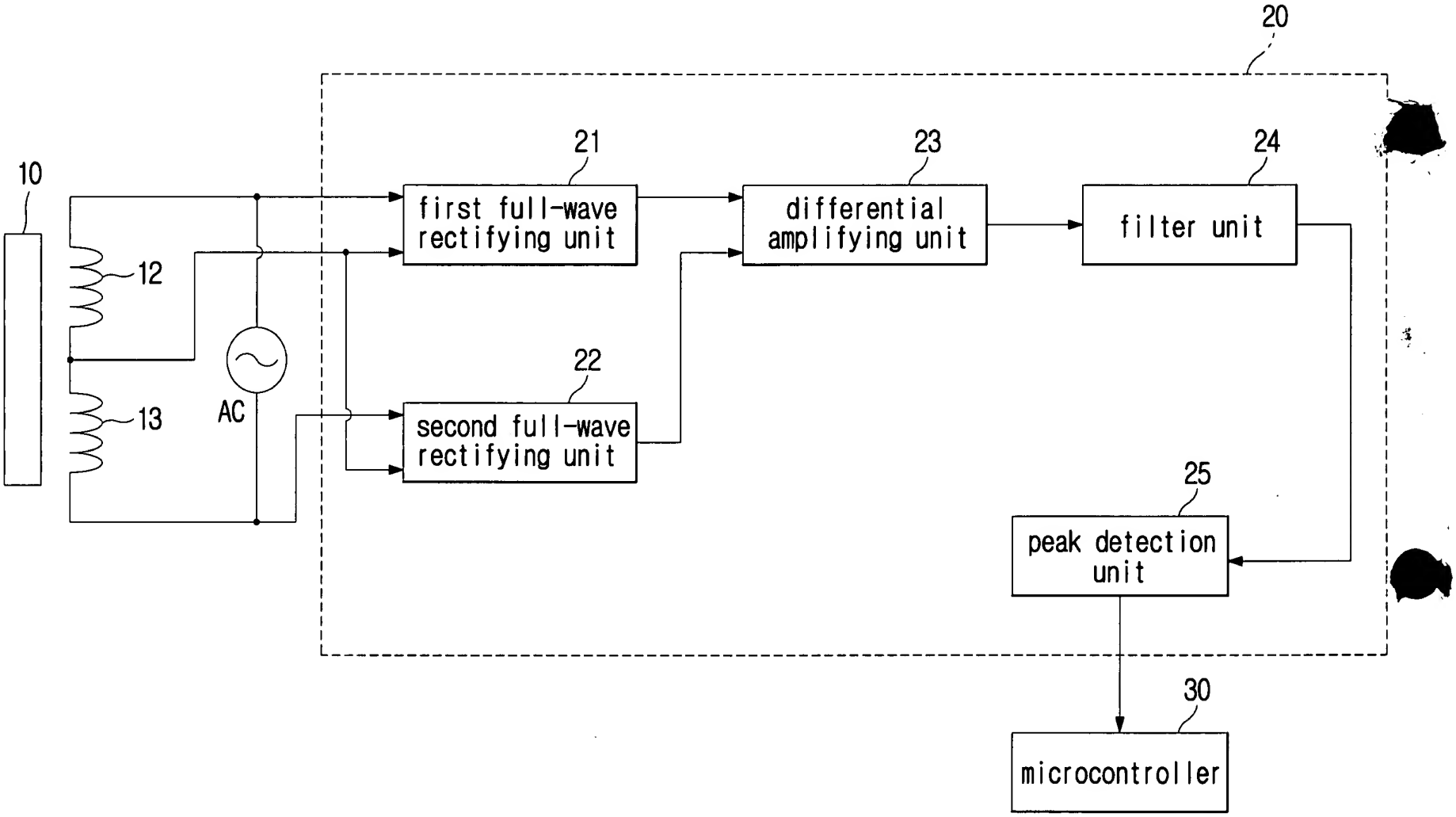
20
10
21
23
24
first full-wave rectifying unit
differential amplifying unit
filter unit
12
AC
22
13
second full-wave rectifying unit
25
peak detection unit
30
microcontroller

FIG. 2

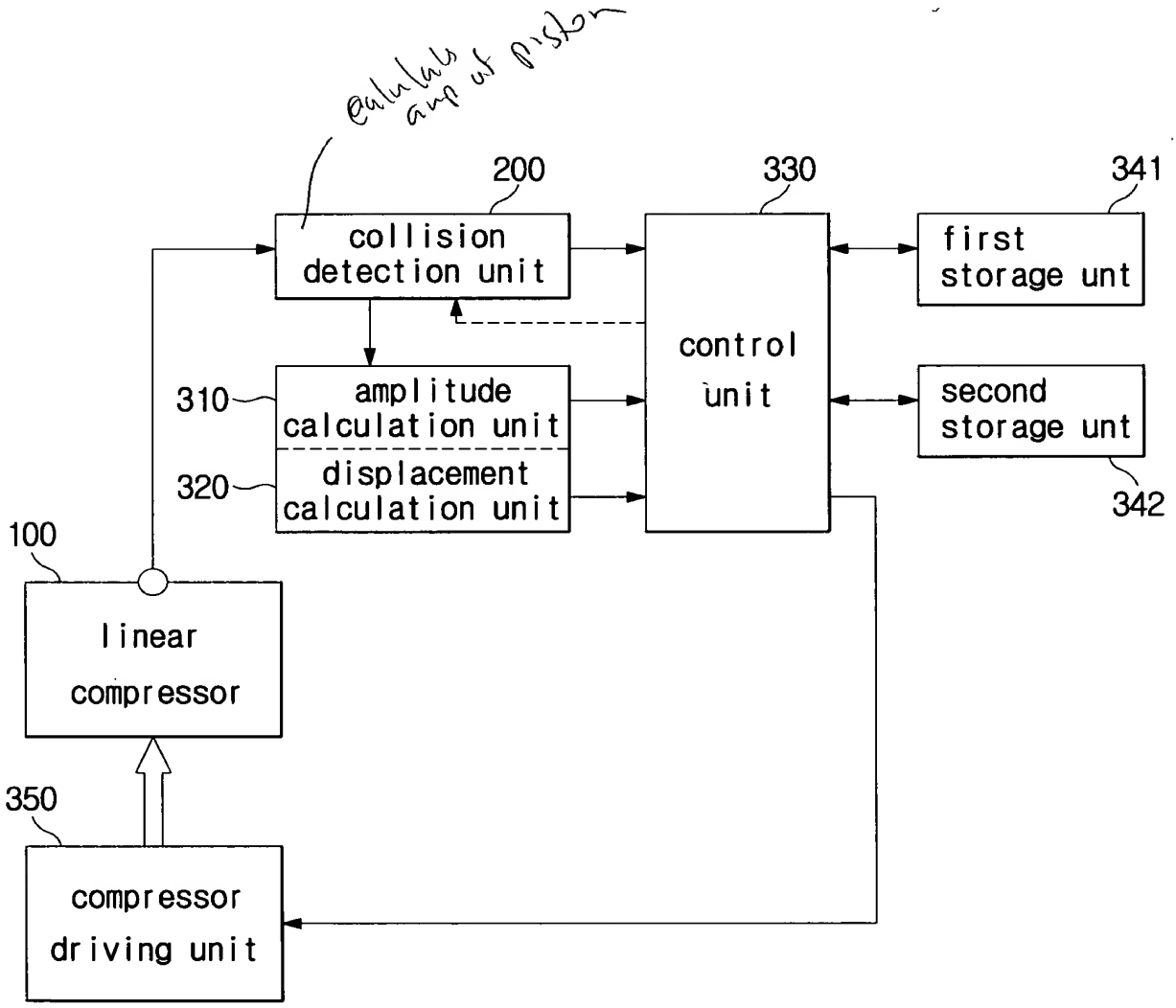
200
330
341
collision detection unit
first storage unt
control unit
310
amplitude calculation unit
second storage unt
320
displacement calculation unit
342
100
linear compressor
350
compressor driving unit

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FIG. 3

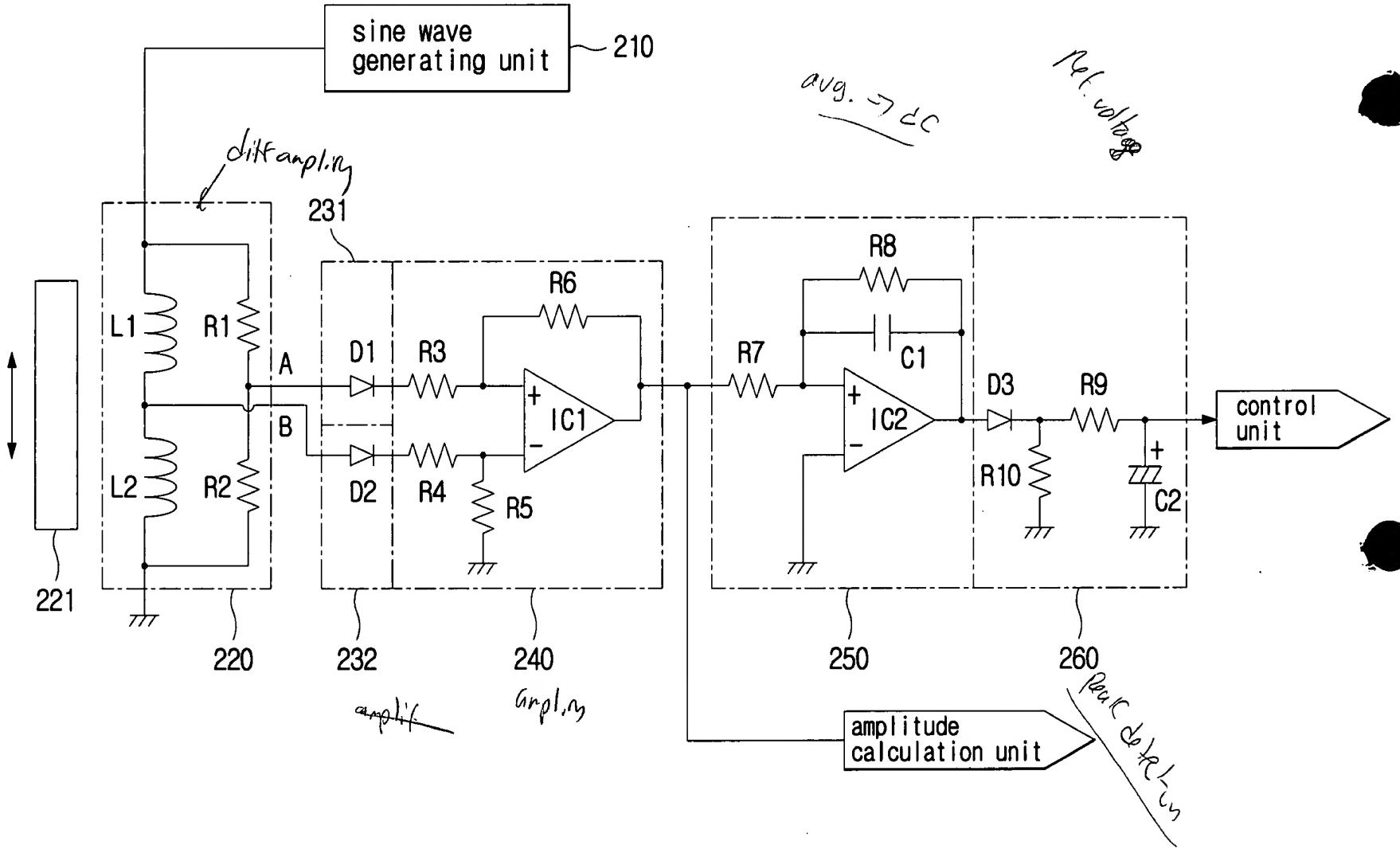


FIG. 4

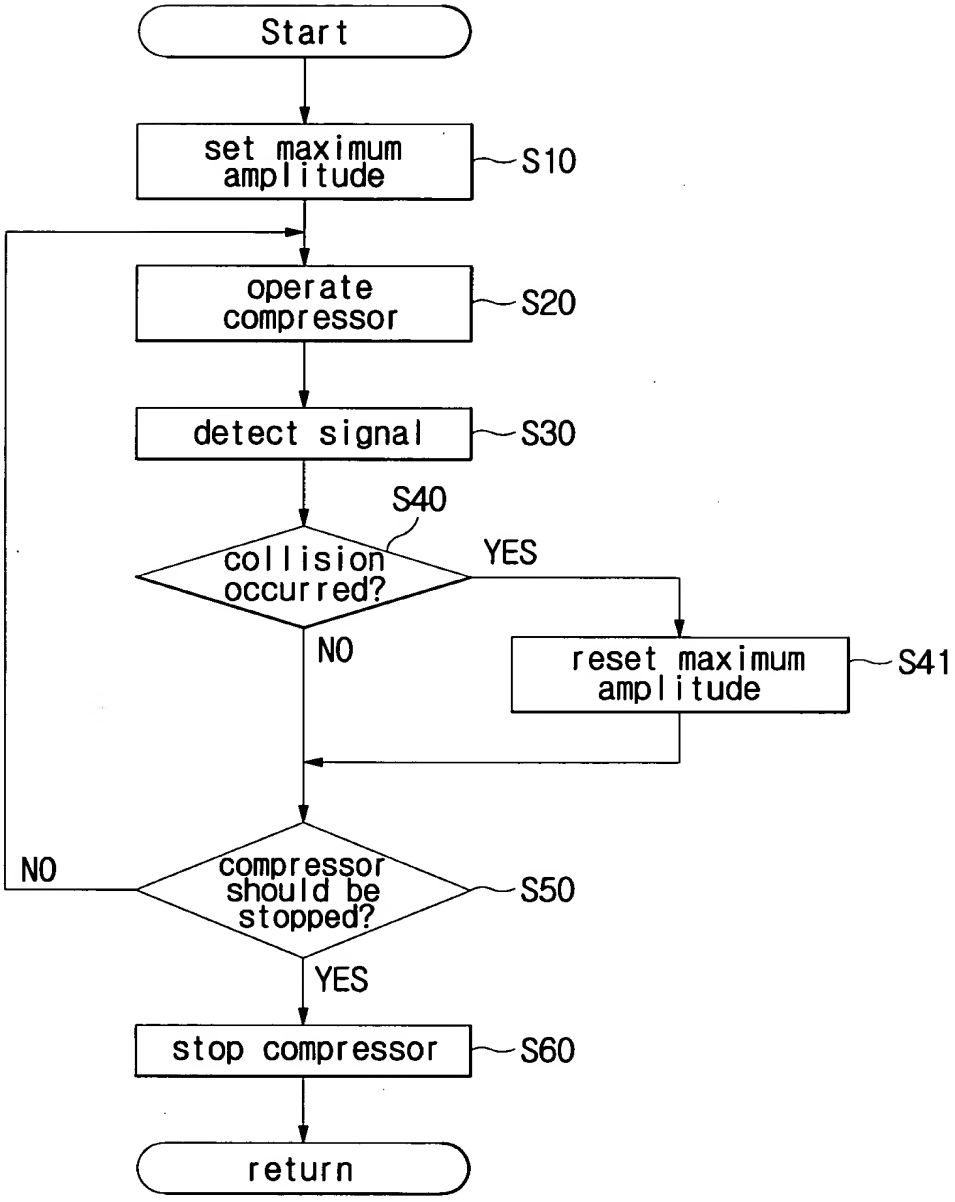
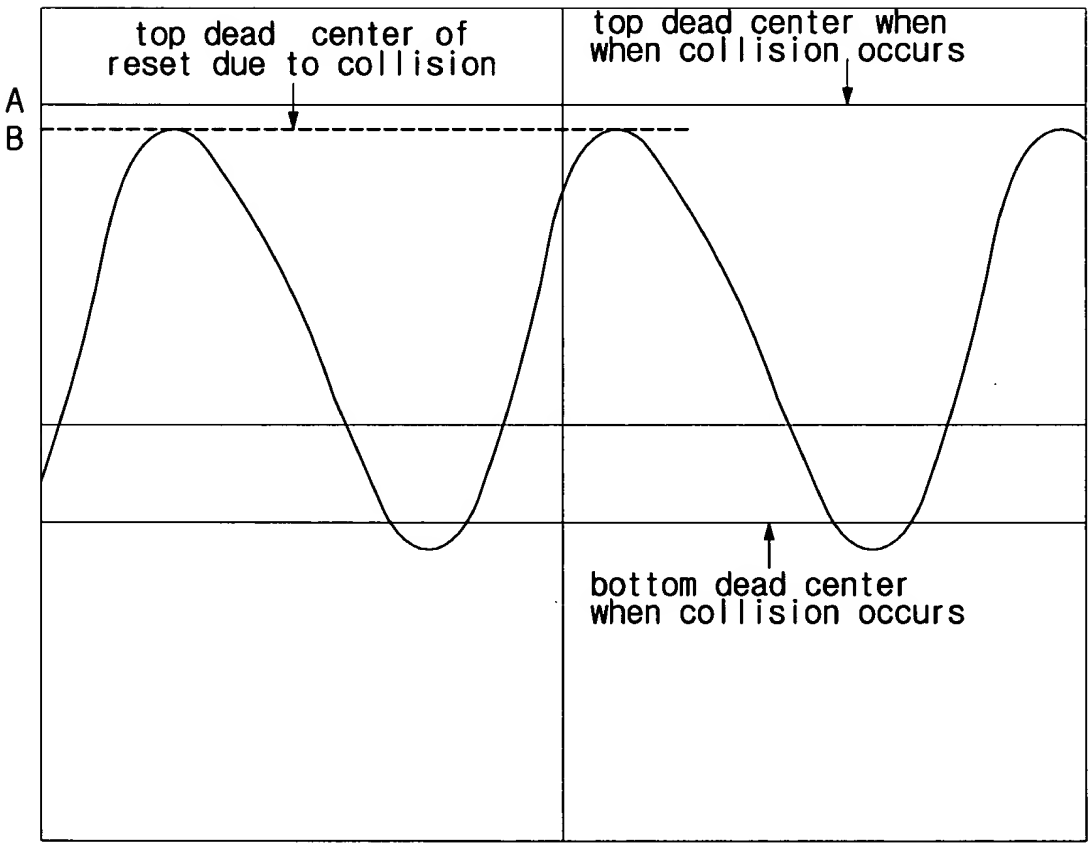

Start
set maximum amplitude
S10
operate compressor
S20
detect signal
S30
S40
collision occurred?
YES
NO
reset maximum amplitude
S41
compressor should be stopped?
NO
S50
YES
stop compressor
S60
return

FIG. 5


top dead center of
reset due to collision
top dead center when
when collision occurs
A
B
bottom dead center
when collision occurs